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BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE

A METHOD OF KEEPING RECORDS ON REPLICATED PLOTS

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In making field applications of insecticidal dusts to experimental plots it is a problem to keep a record of the plots and the various materials used thereon, especially if there are numerous plots and replications. Much time and many steps can be saved if each applicator has a chart of the field in his pocket for ready reference while making the application. This problem has been solved satisfactorily for field plots in tomatoes, and it is believed that the method used can be applied to advantage in other crops.

In the case of tomatoes, a map of the field is drawn on coordinate paper with orange lines (blue lines were not satisfactory, as they did not show in the photograph) and with the small squares 8 by 8 or 10 by 10 to the inch. In most fields each small square represented one tomato plant. In southern California tomatoes are usually planted 6 by 6 or 8 by 8 feet apart, or variations thereof. When the plants are set on the square (6 by 6, 7 by 7, or 8 by 8 feet apart) a true scale map of the field is produced; with variations of the dimensions (6 by 7, 6 by 8, and 7 by 8) a somewhat distorted map results, but this did not prove to be disadvantageous in use. In other fields where the plants were not checked in the rows, each square was allowed to represent one row and a length in that row equal to the distance between the rows. In one field where the plants were set 3 feet in rows 6 feet apart, each small square represented two plants.

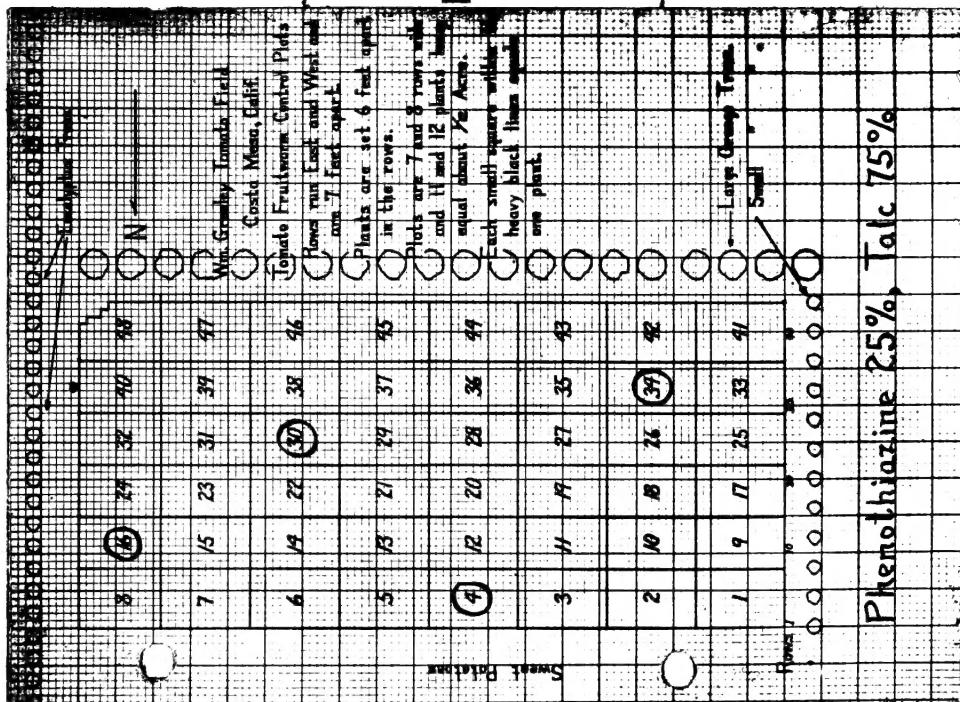
The map is drawn on the coordinate paper with India ink, and the plots are outlined and numbered. The map is then photographed (with Process film) and reduced in size to 5 by 7 inches or less. A field as large as 35 acres has been drawn and reduced to this size satisfactorily.

SCRAPE

The prints are made on double weight, semi-matte paper; double weight to withstand the wear and tear in the field and semimatte so that the face can be written on with ink. One print is made for each material to be used in the field (fig. 1), and if there is a variation in the number of applications for any one material, a print is made for each application (figs. 3, 4, and 5). The materials to be used are then written or printed on the face of the print, and the numbers of the plots that are to receive a given material are circled with ink or blocked in with colored pencil, or both. The back of the print is used for keeping a record of the time of application, the amount used, and the name of the applier (fig. 2).

When operating in the field, the applier fills his duster with the material, weighs the duster and records the weight on the back of the print, puts the print in his pocket so that he can have it to refer to in locating the plots, makes the application, returns and weighs his duster, records the weight on the back, and initials it. The date of application is usually stamped on with a rubber stamp either before or after the application has been made. The prints are perforated and placed in a loose-leaf notebook so that they are held together and can be referred to readily between applications.

Although the method as used is best adapted to dust applications where there are several operators, similar charts were prepared and used in connection with spray plots where there was only one machine and crew in operation.



Jew

14# 8^{oz}
APR 29 1937 10 12
3# 12^{oz}

15# 13^{oz}
MAY 13 1937 10 10
5# 3^{oz}
10^{oz}
5# 13^{oz}

16# 4^{oz}
MAY 29 1937 10 5
5# 15^{oz}

Figure 1.--A chart of one of the 1937 tomato fields, showing how the prints are marked for use with one material.

Figure 2.--The back of figure 1, showing how the application records are kept.



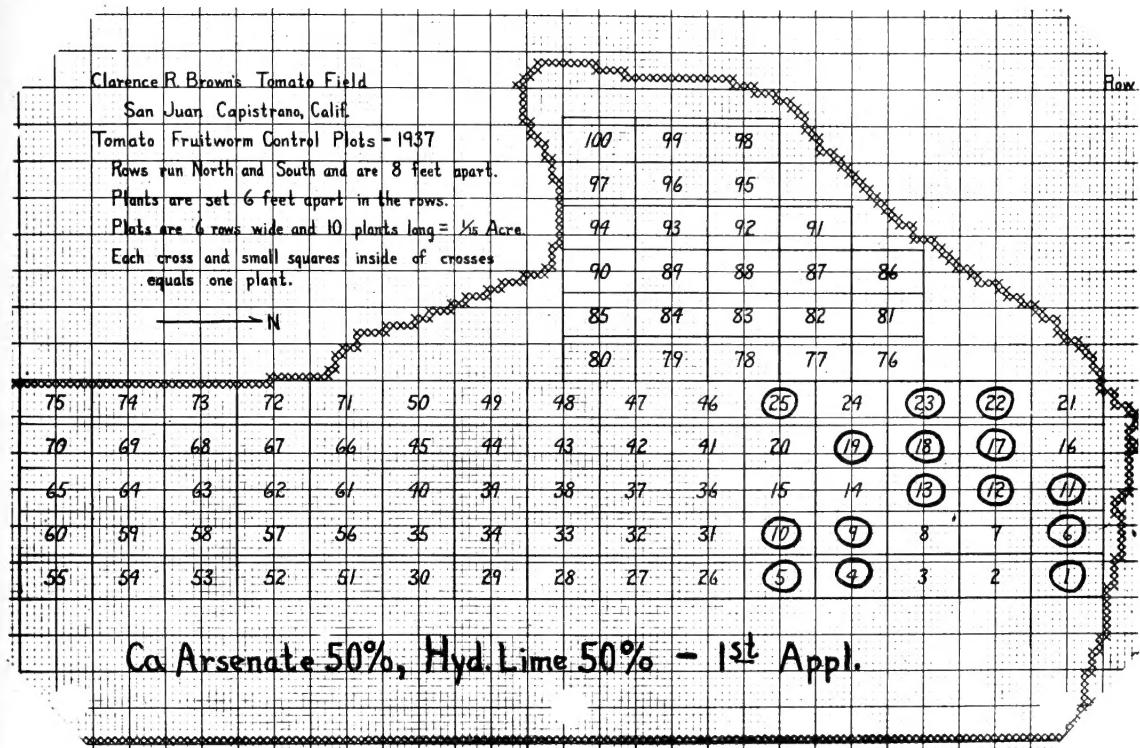


Figure 3.--A chart of one of the 1937 tomato fields, showing how the prints are marked for one material when several different applications are to be made; first application.



Clarence R. Brown's Tomato Field

San Juan Capistrano, Calif.

Tomato Fruitworm Control Plots - 1937

Rows run North and South and are 8 feet apart.

Plants are set 6 feet apart in the rows.

Plots are 6 rows wide and 10 plants long = $\frac{1}{16}$ Acre.

Each cross and small squares inside of crosses equals one plant.

→ N

100 99 98

97 96 95

94 93 92 91

90 89 88 87 86

85 84 83 82 81

80 79 78 77 76

75	74	73	72	71	50	49	48	47	46	25	24	23	22	21	20
70	69	68	67	66	45	44	43	42	41	20	19	18	17	16	15
65	64	63	62	61	40	39	38	37	36	15	14	13	12	11	10
60	59	58	57	56	35	34	33	32	31	10	9	8	7	6	5
55	54	53	52	51	30	29	28	27	26	5	4	3	2	1	0

Ca Arsenate 50%, Hyd. Lime 50% - 2^d Appl.

Figure 4.--Same as figure 3; second application.

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75	74	73	72	71	50	49	48	47	46	25	24	23	22	21	20
70	69	68	67	66	45	44	43	42	41	20	19	18	17	16	15
65	64	63	62	61	40	39	38	37	36	15	14	13	12	11	10
60	59	58	57	56	35	34	33	32	31	10	9	8	7	6	5
55	54	53	52	51	30	29	28	27	26	5	4	3	2	1	0

Ca Arsenate 50%, Hyd. Lime 50% - 3^d Appl.

Figure 5.--Same as figures 3 and 4; third application.

